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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/602,192 | 06/24/2003 | Markus Nopper | 2000.106500 | 1016 |

23720 7590 02/11/2005

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EXAMINER

EVERHART, CARIDAD

ART UNIT PAPER NUMBER

2829

DATE MAILED: 02/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|--|--------------------------------------|--|
| Office Action Summary | Application No. 10/602,192 | Applicant(s) NOPPER ET AL. | |
| | Examiner Caridad M. Everhart | Art Unit 2825 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 November 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7,9-16,19,21,22,24,25 and 29-39 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 29,31-39 is/are allowed.
- 6) ☒ Claim(s) 1,2,12-16,19,24 and 30 is/are rejected.
- 7) ☒ Claim(s) 3-7,9-11,21 and 22 ^{and 25} is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>8-13-04</u> . | 6) <input type="checkbox"/> Other: _____ |

The indicated allowability of the subject matter of claim 8 which was incorporated into amended claim 1 is withdrawn in view of the newly discovered reference(s) to Gankikota, et al. (US 2003/0140988A1). Rejections based on the newly cited reference(s) follow.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 2, 14, and 15 are rejected under 35 U.S.C. 102(e) as being anticipated by Gandikota, et al (US 2003/0140988A1).

Gandikota, et al disclose patterned dielectric layer 12(Fig. 1A), depositing by gaseous deposition atmosphere which has a precursor of a catalytic atom as a layer over the dielectric(paragraphs 0013, 00044, 0132). The copper is then electrolessly deposited from solution on the catalytic layer, with the catalytic layer acting as catalyst(paragraphs 0134 and 0136). The catalyst may be a noble metal (paragraphs 0132 and 0130).

There may be a seed layer(paragraph 0044). The catalyst layer is deposited by using a precursor(paragraph 0044).

Claim Rejections - 35 USC § 103

Claims 12, 13, 16, 19, 24, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gandikota, et al, as applied to claim 1 above.

Gandikota, et al is silent with respect to two different precursor gases supplied sequentially and forming a first barrier layer in the forming the first layer step.

Gandikota et al disclose that The barrier layer may be deposited by CVD (paragraph 0036) and that the barrier may be deposited by using a precursor (paragraph 0038) catalytic layer may be deposited by CVD using the precursor(paragraph 0044).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to have deposited sequentially the barrier and the catalyst using CVD using a first and a second precursor in the same reactor because it is well known in the art that reactors are available which can sequentially deliver different deposition precursors, and this would be interpreted as forming the first barrier layer in the forming the first layer step because the first layer can be a bilayer of the barrier and the catalyst., in addition to depositing the catalyst after the barrier. With respect to adjusting the ratio of atoms, this can be interpreted as the changing of the inlet precursor from that of the first to that of the second layer.

Allowable Subject Matter

Claims 29, and 31-39 are allowed.

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Claims 3-7, 9-11; 21, ~~and~~ ^{and 25} 22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Caridad M. Everhart whose telephone number is 571-272-1892. The examiner can normally be reached on Monday through Fridays 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew S. Smith can be reached on 571-272-1907. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



C. Everhart
2-5-2005

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